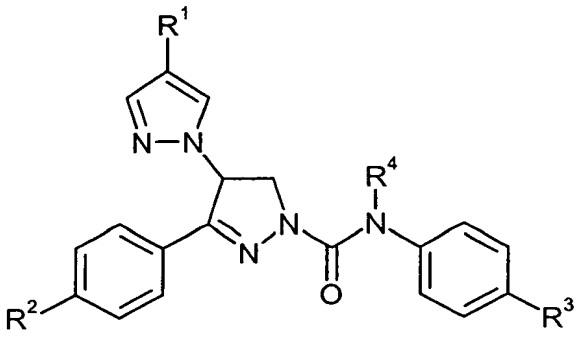
Patent Claims

1. A substituted pyrazoline of the formula (I)



(I)

in which

R^1 represents halogen or cyano,

R^2 represents halogen, haloalkyl, alkoxy, haloalkoxy, alkylthio, haloalkylthio, alkylsulfonyl, haloalkylsulfinyl, haloalkylsulfonyl or cyano,

R^3 represents optionally substituted aryl or optionally substituted hetaryl and

R^4 represents hydrogen, cyanomethyl or alkoxycarbonyl.

2. A substituted pyrazoline of the formula (I) as claimed in claim 1 in which

R^1 represents fluorine, chlorine, bromine, iodine or cyano,

R^2 represents fluorine, chlorine, bromine, iodine; C_1-C_4-haloalkyl, C_1-C_4-alkoxy, C_1-C_4-haloalkoxy, C_1-C_4-alkylthio, C_1-C_4-haloalkylthio, C_1-C_4-alkylsulfonyl, C_1-C_4-haloalkylsulfinyl, C_1-C_4-haloalkylsulfonyl or cyano,

R^3 represents aryl which is optionally mono- or polysubstituted by identical or different substituents, examples of substituents which may be mentioned being: halogen, alkyl, alkoxy, alkylthio, alkylsulfonyl, haloalkyl, haloalkoxy, haloalkylthio, haloalkylsulfonyl or cyano;

represents in each case optionally monosubstituted oxadiazolyl or thiadiazolyl, examples of substituents which may be mentioned being: optionally substituted alkyl, optionally substituted alkoxy, optionally substituted alkylthio, optionally substituted aryl or optionally substituted arylalkyl;

represents optionally monosubstituted tetrazolyl, examples of substituents which may be mentioned being: optionally substituted alkyl, optionally substituted alkylthio or alkylsulfonyl, in each case optionally substituted aryl or arylalkyl or optionally substituted cycloalkyl,

R^4 represents hydrogen, cyanomethyl or C_1-C_4-alkoxycarbonyl.

3. A substituted pyrazoline of the formula (I) as claimed in claim 1 in which

R^1 represents chlorine, bromine, iodine or cyano,

R^2 represents fluorine, chlorine, bromine, iodine, cyano, C_1-C_2-alkylthio, C_1-C_2-alkylsulfonyl, and also represents C_1-C_2-haloalkyl, C_1-C_2-haloalkoxy, C_1-C_2-haloalkylthio or C_1-C_2-haloalkylsulfonyl having in each case 1 to 5 identical or different halogen atoms from the group consisting of fluorine, chlorine and bromine,

R^3 represents phenyl which is optionally mono- to trisubstituted by identical or different substituents, examples of substituents which may be mentioned being: fluorine, chlorine, bromine, iodine, cyano; C_1-C_4-alkyl, C_1-C_4-alkoxy, C_1-C_4-alkylthio, C_1-C_4-alkylsulfonyl, and also represents C_1-C_4-haloalkyl, C_1-C_4-haloalkoxy,

C_1-C_4-haloalkylthio or C_1-C_4-haloalkylsulfonyl having in each case 1 to 5 identical or different halogen atoms from the group consisting of fluorine, chlorine and bromine;

represents in each case optionally monosubstituted oxadiazolyl or thiadiazolyl, examples of substituents which may be mentioned being: C_1-C_4-alkyl, C_1-C_4-haloalkyl, C_1-C_4-alkoxy, C_1-C_4-haloalkoxy, C_1-C_4-alkylthio, C_1-C_4-haloalkylthio, and also phenyl or benzyl, each of which is optionally mono- to trisubstituted by identical or different substituents from the group consisting of halogen, C_1-C_4-haloalkyl and C_1-C_4-haloalkoxy;

represents optionally substituted tetrazolyl, examples of substituents which may be mentioned being: C_1-C_4-alkyl, C_1-C_4-haloalkyl, C_1-C_4-alkylthio, C_1-C_4-alkylsulfonyl, and also phenyl or benzyl, each of which is optionally mono- to trisubstituted by identical or different substituents from the group consisting of halogen, C_1-C_4-haloalkyl and C_1-C_4-haloalkoxy, furthermore cyclopentyl or cyclohexyl, each of which is optionally mono- to trisubstituted by identical or different substituents from the group consisting of C_1-C_4-alkyl,

R^4 represents hydrogen, cyanomethyl or C_1-C_4-alkoxycarbonyl.

4. A substituted pyrazoline of the formula (I) as claimed in claim 1 in which

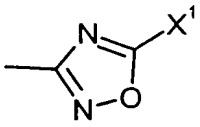
R^1 represents chlorine, bromine or cyano,

R^2 represents fluorine, chlorine, bromine, iodine, methylthio, trifluoromethyl, trifluoromethoxy or trifluoromethylthio,

R^3 represents phenyl which is optionally mono- to trisubstituted by identical or different substituents, examples of substituents which may be mentioned being: fluorine, chlorine, bromine, iodine, cyano,

methyl, methoxy, methylthio, trifluoromethyl, trifluoromethoxy, trifluoromethylthio or trifluoromethylsulfonyl;

represents an oxadiazolyl group from the group consisting of: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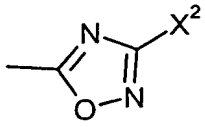
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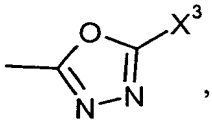
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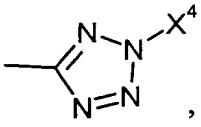
where

X^1, X^2 and X^3 independently of one another represent hydrogen, C_1-C_4-alkyl, C_1-C_4-haloalkyl, C_1-C_4-alkylthio, C_1-C_4-haloalkylthio and also represent phenyl or benzyl, each of which is optionally mono- to trisubstituted by identical or different substituents from the group consisting of halogen, C_1-C_2-haloalkyl or C_1-C_2-haloalkoxy having in each case 1 to 3 identical or different halogen atoms from the group consisting of fluorine, chlorine and bromine;

represents a tetrazolyl group from the group consisting of: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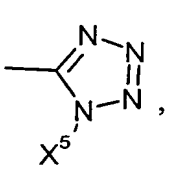
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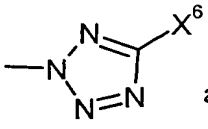
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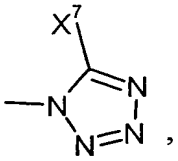
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where

X^4, X^5, X^6 and X^7 independently of one another represent hydrogen, C_1-C_4-alkyl, C_1-C_2-haloalkyl having 1 to 3 identical or different halogen atoms from the group consisting of fluorine, chlorine and bromine; C_1-C_4-alkylthio, C_1-C_4-alkylsulfonyl, represent phenyl or benzyl, each of which is optionally mono- to trisubstituted by identical or different substituents from the group consisting of halogen, C_1-C_2-haloalkyl and C_1-C_2-haloalkoxy having in each case 1 to 3 identical or different halogen atoms from the group consisting of fluorine, chlorine and bromine; and also represent cyclopentyl or cyclohexyl,

each of which is optionally mono- to trisubstituted by C_1-C_4-alkyl,

R^4 represents hydrogen, cyanomethyl, methoxycarbonyl, ethoxycarbonyl, n- or i-propoxycarbonyl, n-, i-, s- or t-butoxycarbonyl.

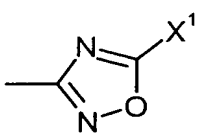
5. A substituted pyrazoline of the formula (I) as claimed in claim 1 in which

R^1 represents chlorine or cyano,

R^2 represents fluorine, chlorine, bromine, iodine or trifluoromethylthio,

R^3 represents phenyl which is optionally mono- or disubstituted by identical or different substituents from the group consisting of fluorine, chlorine, trifluoromethyl, trifluoromethoxy and trifluoromethylthio;

represents an oxadiazolyl group from the group consisting of:



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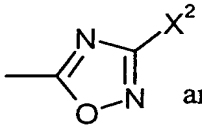

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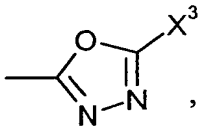
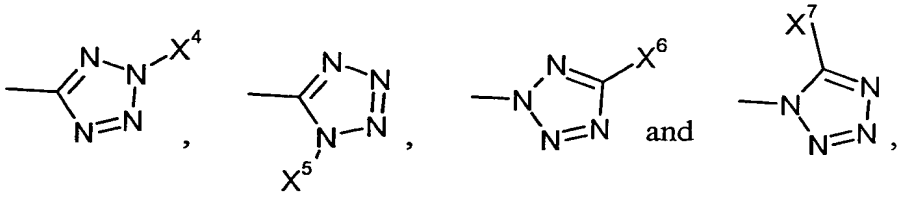


,

where

X^1, X^2 and X^3 independently of one another represent hydrogen, methyl, ethyl, n- or i-propyl, n-, i-, s- or t-butyl, trifluoromethyl, trifluoromethoxy or trifluoromethylthio and also represent phenyl or benzyl, each of which is optionally mono- or disubstituted by identical or different substituents from the group consisting of fluorine, chlorine, bromine, trifluoromethyl or trifluoromethoxy;

represents a tetrazolyl group from the group consisting of:



where

X^4, X^5, X^6 and X^7 independently of one another represent hydrogen, methyl, ethyl, n- or i-propyl, n-, i-, s- or t-butyl; fluoromethyl, difluoromethyl, trifluoromethyl, 1,1-difluoroethyl, 2,2,2-trifluoroethyl, methylthio, ethylthio, methylsulfonyl, ethylsulfonyl; represent phenyl or benzyl, each of which is optionally mono- to disubstituted by identical or different substituents from the group consisting of fluorine, chlorine, bromine, methyl, methoxy, trifluoromethyl and trifluoromethoxy; and also represent cyclohexyl which is optionally mono- to disubstituted by methyl,

R^4 represents hydrogen or cyanomethyl.

6. A compound of the formula (I) as claimed in claim 1, in which R^1 is cyano.

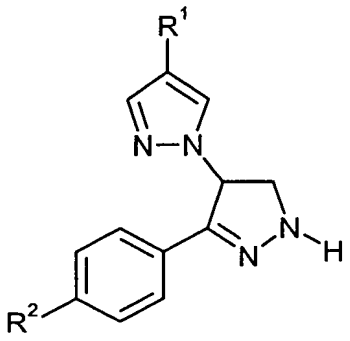
7. A compound of the formula (I) as claimed in claim 1, in which R^2 is halogen, preferably fluorine, chlorine, bromine, iodine, particularly preferably fluorine or chlorine, very particularly preferably chlorine.

8. A compound of the formula (I) as claimed in claim 1, in which R^1 is cyano and R^2 is chlorine.

9. A compound of the formula (I) as claimed in claim 1, in which R^4 is hydrogen or cyanomethyl.

10. A process for preparing substituted pyrazolines of the formula (I) as claimed in claim 1, characterized in that

a) pyrazolines of the formula (II)

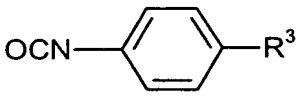


(II)

in which

R^1 and R^2 are as defined in claim 1

are reacted with isocyanates of the formula (III)



(III)

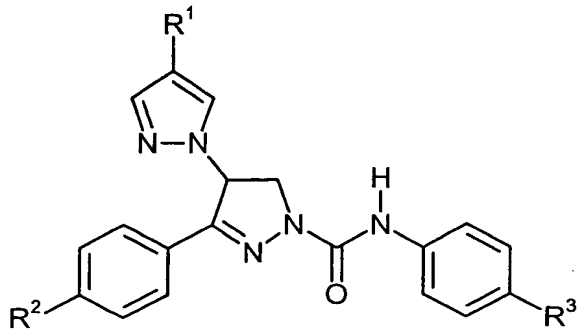
in which

R^3 is as defined in claim 1,

if appropriate in the presence of a diluent and if appropriate in the presence of a catalyst;

and

b) the resulting pyrazoline derivatives of the formula (Ia) according to the invention



(Ia)

in which

R^1, R^2 and R^3 are as defined in claim 1

are optionally reacted with halides of the formula (IV)

$$Hal^1—R^4 \qquad (IV)$$

in which

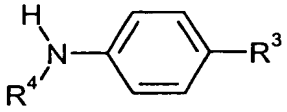
R^4 is as defined in claim 1 and

Hal^1 represents halogen,

if appropriate in the presence of a diluent and if appropriate in the presence of a base;

or

c) anilines of the formula (V)

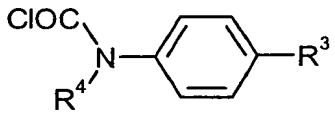


(V)

in which

R^3 and R^4 are as defined in claim 1

are initially reacted with phosgene in the presence of a diluent and if appropriate in the presence of a base, and the resulting carbamoyl chlorides of the formula (VI)

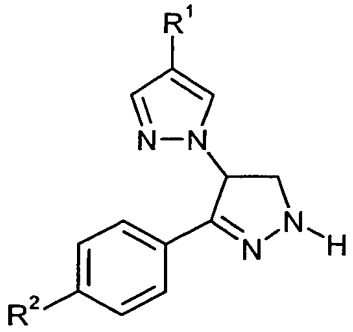


(VI)

in which

R^3 and R^4 are as defined in claim 1

are reacted directly or after intermediate isolation with pyrazolines of the formula (II)



(II)

in which

R^1 and R^2 are as defined in claim 1,

in the presence of a diluent and if appropriate in the presence of a base.

11. A pesticide, characterized in that it comprises at least one compound of the formula (I) as claimed in claim 1, in addition to extenders and/or surfactants.

12. The use of compounds of the formula (I) as claimed in claim 1 for controlling pests.

13. A method for controlling pests, characterized in that compounds of the formula (I) as claimed in claim 1 are allowed to act on pests and/or their habitat.

14. A process for preparing pesticides, characterized in that compounds of the formula (I) as claimed in claim 1 are mixed with extenders and/or surfactants.